

Claims

1. A control device for motor generator characterized by comprising a motor generator having a stator with an armature winding wound thereon and a rotor of claw-pole shape with a field winding wound thereon, an inverter unit that sends and receives electric power to and from the armature winding, a field circuit that controls a field current flowing through the field winding, and a control circuit that controls the inverter unit and the field circuit, wherein an engine is started and power generation is performed while a vehicle is running,

wherein a field current limit value I_{fm} in electric driving to start the engine is larger than a field current limit value I_{fg} in power generation,

in the power generation, an inverter mode in a low rotation speed zone for boosting and an alternator mode in a high rotation speed zone for rectifying and outputting a generated voltage without boosting are provided,

a field current limit value I_{fgi} in the inverter-mode power generation and a field current limit value I_{fga} in the alternator-mode power generation are set differently from each other, and

the larger value is set as the value I_{fg} .

2. The control device for motor generator as claimed in

claim 1, wherein the field current limit value I_{fga} in the alternator-mode power generation is set to be equal to or larger than the field current limit value I_{fgi} in the inverter-mode power generation, and the field current limit value I_{fga} in the alternator-mode power generation is set as the field current limit value I_{fg} in the power generation.

3. The control device for motor generator as claimed in claim 1, wherein the field current limit value I_{fgi} in the inverter-mode power generation is set to be equal to or larger than the field current limit value I_{fga} in the alternator-mode power generation, and the field current limit value I_{fgi} in the inverter-mode power generation is set as the field current limit value I_{fg} in the power generation.

4. The control device for motor generator as claimed in any one of claims 1 to 3, characterized in that the field current limit value at the time of maximum power generation in the inverter-mode power generation in a low rotation speed zone for boosting is expressed as I_{fgi} , and the value I_{fgi} is a function of rotation speed, and

a speed zone is provided such that a field current I_{fgip} in the case where the quantity of power generation at each rotation speed is smaller than the maximum quantity of power generation at the rotation speed is smaller than I_{fgi} .

5. The control device for motor generator as claimed in claim 1 or 3, wherein the low rotation speed zone for boosting

includes a zone where boosting is not carried out at the time of low load, and a field current in this case is equal to or larger than the field current limit value I_{fga} in the alternator-mode power generation.

6. The control device for motor generator as claimed in any one of claims 1 to 3, wherein the rotor of claw-pole shape has a field-supplementing permanent magnet.